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CENTRAL INTELLIGENCE AGENCY  
PHOTOGRAPHIC INTELLIGENCE DIVISION  
PHOTOGRAPHIC INTELLIGENCE REPORT

**ANTIPINSKOYE SAM RELATED ACTIVITY,  
USSR**

CIA/PIR-1013/65



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ANTIPINSKOYE SAM RELATED ACTIVITY,  
USSR

## INTRODUCTION

This report presents a detailed analysis, and an updating of previously published information, concerning the SAM related activity located near Antipinskoye, USSR, at 52-53N 113-32E. It is intended to represent a summation of all presently existing information concerning this activity. Attention was first drawn to the Antipinskoye area [ ] when two surface-to-air missile launch sites were identified approximately 50 nm north of Chita, in this vicinity. Subsequently, these sites disappeared, and then re-appeared during the following winter. Concurrent with this activity, road building and right-of-way clearance were observed which presaged the construction of the permanent launch facilities. From that time to this, the SAM activity near Antipinskoye has remained fairly consistent, though in large part it has remained activity of an unidentified nature. 25X1

In addition to the SAM activity at Antipinskoye, the report contains information concerning the recently identified radar site in the general vicinity of Antipinskoye, and also information dealing with certain SAM facilities at Kapustin Yar Missile Test Range where similarities were noted between these and the facilities at Antipinskoye.

All mensuration presented in this report has been performed by the NPIC/Technical Intelligence Division, with the exception of those measurements which have been specifically noted throughout the text. These measurements were made by the CIA/PID photo-analyst, using scale factors derived from NPIC/TID measurements. They should be considered approximate and must not be taken as official NPIC/TID mensuration data. Since the accuracy statements relating to the NPIC/TID measurements vary, they have been presented in context with the measurements to which they apply.

## SUMMARY

The Antipinskoye SAM related activity is located at 52-53N 113-32E, approximately 3 nm east of the village of Antipinskoye, and 50 nm north of the city of Chita. This road served activity is situated in a range of low hills along the Konda River, in an extremely isolated location. No airstrips have been observed in support of this effort, and the nearest known railhead is located at Chita. Facilities include a main housing and support area, several associated motor pools and vehicle storage areas, and three SAM launch areas located to the east of the housing and support area (See Attachment 1).

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## Launch Area A

Launch Area A, the northernmost of the three launch areas, is nothing more than a cleared field (See Attachment 2). On four occasions however, a 6-position launch site has been observed in this area.

In effect then, this area contains a field launch site. No improved or permanent facilities have yet been incorporated into this area, and in the absence of vehicles and equipment all that remains is a configuration of ground scars which form a 6-position, generally circular arrangement.

Activity in this area, as observed from photography, has been quite limited. The peak of activity seems to have occurred during the winter of [redacted] when it was seen active [redacted]

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[redacted] No activity has been observed in the area [redacted] although some of the photography taken [redacted] precluded this determination due to weather and photo quality. Possible equipment was observed along the access road into the area [redacted] indicating that a unit possibly may have been moving in at the time of that photography. Whether or not this actually was equipment in transit could not be confirmed. There was no sign of activity on the date of the next photography [redacted]

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One possible reason for the prolonged inactivity observed at Launch Area A could be the construction of permanent launch sites in Launch Area C. Launch Area A has remained inactive since the time of this construction although a break in continuity occurred [redacted] when Area A was inactive and Area C was incomplete.

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To date, the available photography of equipment in this launch area does not permit identification, or meaningful mensuration. The equipment does appear similar, in amount and in arrangement, to that seen on the permanent launch sites in Launch Area B.

Mensuration of the principal features within Launch Area A is presented in Attachment 3. These dimensions are considered accurate within plus or minus 10 percent.

## Launch Area B

The overall appearance of Launch Area B, (See Attachments 1 and 2), has changed very little since the two launch sites were first observed there on [redacted] Much additional information of value has become available, however, through repetitive photo coverage.

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KH-4 photography [ ] permitted the first observation of the finished launch sites without a covering of snow. The service roads, launch positions, and guidance area all appear to be constructed in the same manner, ie., elevated slightly above the terrain. This particular manner of road construction facilitates drainage of the roadbed and is a common road-building practice in permafrost zones throughout the world. The Antipinskoye area would be considered a permafrost zone.

The service roads and prepared positions all appear to be constructed of the same light-toned material. Although these surfaces give a smooth, hardened appearance, they undoubtedly are not, since most hardened roads in the Soviet Union are limited to large population centers, and major military areas of significance. Known Soviet road construction practices in permafrost areas would suggest that the roads (and launch positions) consist of a rolled gravel base, surfaced with a heavy layer of clay which has been rolled smooth. Under conditions of limited traffic, this combination provides a surface which is nearly as hard as a true hardened surface, although it requires frequent maintenance.

None of the launch positions or guidance areas with Launch Area B are revetted, nor are there any revetted missile hold areas. For that matter, there are no hold areas at all, in the manner associated with the SA-2 system, however a vehicle parking area is located to the rear of each launch site. Cable scars are evident, connecting the guidance area with the launch positions, and it is believed from their appearance that these lines are above ground, rather than buried. There are some indications of physical security around Launch Area B, visible principally to the rear of the vehicle parking areas. The area does not seem heavily secured, and the trace of the security fence cannot be seen around the entire perimeter of the launch sites.

The degree of activity seen in this launch area is considerably greater than in the case of Launch Area A. Since they were completed, the sites in Launch Area B have been photographed 16 times when a determination of occupancy could be made. This photography has occurred during all seasons of the year. On twelve of these occasions, both sites were occupied; on the remaining four occasions, only the southern site appeared to be occupied.

The best photo quality to date has in some instances permitted identification of vehicles and equipment by functional type only. The only photography of sufficient quality to permit this identification [ ] permitted only non-stereo analysis, which accounts for the generalized descriptions frequently presented. 25X1

With respect to the launchers themselves, almost nothing can be determined. Each launcher appears to have a linear outline; that is, the impression of length is present, such as a rail-type launcher might create. In most cases, the linear mass appears to be positioned at right angles to the service road,

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which would suggest a missile transfer procedure similar to that employed with the SA-2 missile system. It is considered likely that the capacity of each launcher is limited to one missile at a time, thereby precluding a multiple launcher.

The arrangement and amount of equipment in each of the two guidance areas in Launch Area B seems to be identical. This equipment appears to consist of a guidance radar and approximately 8-10 vans or trailer-type vehicles. The guidance radar has always been observed in the forwardmost part of the guidance area, with respect to the assumed principal direction of fire (northeast). To the rear of the radar are the vans or trailers, always parked in two distinctly separate rows. These vans or trailers are approximately 20 feet long

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\* There are also, possibly, several smaller vehicles present in proximity to the vans already described.

The guidance radar was analyzed at some length in an attempt to determine its configuration and type. Bearing in mind the lack of stereo-mode photography, there are nevertheless, certain aspects of both guidance radars that equate rather well to a FAN SONG, or FAN SONG-type guidance radar. In both cases the bulk which would constitute the van body is visible, as is a structure, oriented properly with respect to the "van", which could constitute the horizontal trough. At one of the two locations a possible vertical trough is also visible. On the guidance radar in the southern site, a possible dish is visible which is mounted on the end of the horizontal trough. However a confident interpretation of this feature cannot be made, due to poor tonal contrast.

The previously published figures for the heights of the "towers" at these locations are not incompatible with the height of the vertical trough of a FAN SONG Radar, when this trough is in a vertical position. For the purposes of this memorandum the heights of these objects were re-measured using different photography. The height dimensions obtained ranged from 25' to 35', accurate within plus or minus 10 percent. If the radars under consideration are FAN SONG types, these figures can be expected to vary with any rotation of the vertical trough, which would change the length of the shadow. Additional high resolution photography may permit a more detailed interpretation of the radars.

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The greatest concentrations of vehicles within the launch area are found to the rear of each launch site. The numbers and types of vehicles appear to vary from mission to mission. therefore the description of vehicles which follows applies only to KH Mission. At the time of that photography, there were present behind each launch site at least four distinctly different types of vehicles. The following table presents an indication of the type, number, and size of these vehicles.

\*All measurements in this memorandum which are followed by an asterisk have been made by the CIA/PID project analyst, using scale factors derived from NPIC/TID measurements. They should not be construed as being mensuration data compiled by the NPIC/Technical Intelligence Division.

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Vehicles Present At Launch Area B,  
Antipinskove SAM-Related Activity on

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## Northern Launch Site

Vehicle Type	Number
Probable Missile Transporter Trailers	at least 4
Probable Launcher Bogeys	probably 6
Canvas-Covered Vehicles (possibly tracked prime movers or vans)	at least 7
U/I vehicles, possibly including some transporter prime movers	at least 4

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## Southern Launch Site

Vehicle Type	Number
Probable Missile Transporter Trailers	at least 6
Probable Launcher Bogeys	probably 6
Canvas-Covered Vehicles (possibly tracked prime movers or vans)	at least 10, possibly as many as 15
U/I vehicles, possibly including some transporter prime movers	13 to 15

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\*All measurements in this memorandum which are followed by an asterisk have been made by the CIA/PID Project analyst, using scale factors derived from NPIC/TID measurements. They should not be construed as being mensuration data compiled by the NPIC/Technical Intelligence Division.

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Basic dimensions for the sites within Launch Area B are found in Attachment 4. These dimensions are considered accurate within plus or minus 10 feet, or 10 percent, whichever is greater.

#### Launch Area C

Launch Area C, the southernmost launch area, was not constructed until the summer of 1964. The sites which were built in this area are of the same general size and configuration as those in Launch Area B. (See Attachment 5 for site dimensions, accurate within plus or minus 10 percent). The roads and prepared positions also seem to be constructed in the same manner and of the same material. No revetted positions are to be seen in this launch area, either. Construction of these sites was not completed until some time between [redacted] thus the finished launch sites have not yet been observed on snow-free photography. This snow cover results in the ragged appearance of the sites as drawn in Attachment 5.

Three obvious differences of possible significance exist between the sites in Launch Area C, and those in Launch Area B. The first is timing. Launch Area B was first observed finished and active [redacted] while Launch Area C appeared completed and partially occupied [redacted]. The construction of Launch Area C was apparently programmed from the outset however, since the ground for all three launch areas was cleared concurrently in the early summer of 1962. Perhaps the one year lag between construction of the two areas represents merely an orderly program of expansion, based on an increased need. The second point is physical appearance. While the sites in the two launch areas are quite similar, they are not identical. The sites in Launch Area C lack the short-radius bypass roads around the launch positions which are so obvious at the sites in Launch Area B (See Attachment 2). There is, however, a noticeable widening of the access road in the vicinity of each launch position in Launch Area C. It is possible that this signifies some difference between the systems employed in the two areas, or it is possible that the bypass roads were found to be unnecessary in a non-operational setting, when missile transloading onto several launchers can proceed at a more leisurely pace. The last point is the matter of physical security. Launch Area B has been completed and active for approximately 16 months, and if it is secured at all, it is apparently secured in a very minimal fashion, as noted in a preceding paragraph. Launch Area C had been completed for approximately one month when signs of security fencing first appeared. This has resulted in a very dark-toned, obvious perimeter fence which may even be a board fence, or a wall. This fenceline also encloses the vehicle parking areas behind the two sites (See Attachment 2).

Since the sites in Launch Area C were completed, they have been photographed 5 times. On all five occasions, the southern site has been occupied; on 4 of these occasions, the northern site has probably not been occupied. The chart in Attachment 6 illustrates the status of occupancy of all launch sites at

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Antipinskoye, Launch Areas A through C

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With regard to equipment located at the sites in Launch Area C, no detailed description can be presented, however the general arrangement of this equipment on the sites appears to be the same as that seen on the sites in Launch Area B. There also appears to be equipment parked to the rear of each launch site.

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The sites in both launch areas, A and B, appeared quite active on the most recent photography and there were strong indications that probable missile firings had taken place, as evidenced by the large generally circular areas of snow meltage around certain of the launch positions. These areas of snow meltage were present at 12 launch positions; at none of the four launch sites were all launch positions involved, however (See Attachment 2).

#### Support Areas

The main support area for the SAM Activity at Antipinskoye is located approximately 2 nm west of the launch sites, in a large bend of the Konda River (See Attachment 1). This facility consists of the main housing area, a large motor pool located immediately east of the building area, and intermittent motor pool-type activity located south of the building area, across the main road. Additionally, there is a very small probable support area containing, at best, two or three buildings, which is located near the sharp bend in the access road leading to the launch sites.

The main building area, at present, consists of 32 identifiable structures, a motor pool area, and a suspect second motor pool area. Dimensions and probable functions for the buildings are presented in Attachment 7. The dimensions are considered accurate within plus or minus 5 percent or 5 feet whichever is greater, except for the approximate dimension, where no accuracy statement is presented. The suspect second motor pool, lying to the east of buildings 32 and 33 in the line drawing (Attachment 7), was not labelled as such since its outline was rather vague and no actual vehicles could be identified within. It may also be employed as an open storage yard. The area appears to be fenced, at least in part, and it lies between the two main roads in the building area. The function of the 45' high tower located near the river bank (Attachment 7) is undetermined. It could be related to the water supply for the area.

All permanent housing facilities in support of the Antipinskoye SAM activity are apparently located within this building area. If both categories of barracks (possible and probable) are combined, they total 18,525 square feet. This would accommodate approximately 370 troops, assuming 50 square feet per man, or approximately 265 troops, assuming 70 square feet per man. These troop capacity figures assume that all of the barracks buildings are single story, which they seem to be, and that no family-type quarters are involved. It is believed that these troop capacity figures should be regarded as maximum figures.

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The large motor pool area, located to the east of the building area (See Attachment 1), is consistently quite active. When photo quality permits a determination, the number and location of vehicles present in the area can be seen to vary considerably. This area is considered to be the most likely candidate, among the facilities at Antipinskoye, for a missile support facility (See Attachment 8). The semi-permanent facilities seen within this area do not equate in number, or configuration, to the permanent facilities seen at an SA-2-type SAM Support Facility. However, the road patterns within the area, the number of vehicles which are constantly present, the dispersal of activities within the area, the size of the area, the location--convenient to vehicular traffic and the housing area, yet isolated enough to insure safety of the housing area--suggest SAM support activity.

To the south of the building area, lying along the south edge of the main road is an area of sporadic vehicular activity. On various occasions vehicle concentrations have been observed in this area. During the winter months of 1963-64 the area contained at least five structures which were directly related to heavy patterns of vehicular traffic. At that time it appeared as though the permanent facilities might be expanded in this direction, forming a new building area south of the road. Subsequently, these structures disappeared, and it is possible that they were nothing more than large tents or semi-permanent structures which were placed here for a specific period or operation, and then removed. Though the structures have not been observed again in this area, vehicles continue to frequent the area.

Finally, there is a very small support area located near the sharp bend in the access road to the launch sites (See Attachments 1 and 2). This area consists of a small clearing in the trees which contains a single major road-served building measuring 100 feet by 50 feet, mensuration accurate within plus or minus 5 percent or 5 feet, whichever is greater. In addition to this building there may also be several small sheds within the area. No physical security can be identified. However, due to the surrounding heavy trees, such a fence-line might well be present. The function of this small area cannot be determined. It has been suggested as a missile support facility, however the facilities available within the area are not thought to be adequate to support such a mission. It is thought more likely that the building could be used to store administrative-type equipment for use on the sites, such as wiring, small electrical units, generators, etc., during periods when the sites are not in use. An example of such a support building is that structure found in close proximity to all rifle ranges, where such things as targets, target racks, spare wiring, etc. is stored during periods of inactivity.

#### Antipinskoye Area Radar Site

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On KH Mission [redacted] a small radar installation was identified approximately 2 nm north of the village of Telemba, at 52-45N, 113-18E. This location places the radar site approximately 13 nm southwest of the Antipinskoye launch sites, and almost "behind" them, with respect to the assumed principle

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direction of fire (See Attachments 9 and 12). As seen [ ] this radar site, which was under construction [ ] consisted of a probable BIG BAR Radar on a mound, a separate position containing two vans, another position with four vans, and suspect UHF/VHF communications antennas. There is no hard evidence to link this radar site with the Antipinskoye SAM activity, however the location with respect to the launch sites is favorable, and the distance presents no problem, since the range of BIG BAR is approximately 210 nm. The absence of any other known missile/electronics activity in this area also suggests that they may be related.

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BIG BAR is commonly used for aircraft tracking with the PVO, usually in a Ground Controlled Intercept, or Early Warning Role. Two possibilities suggest themselves in this respect, for possible connection with the SAM activity nearby. One is to maintain control over a prohibited area around the launch activity. The other is to perform tracking activity in support of the launch operations, possibly against drone-type targets.

#### Kapustin Yar Similarities

Recent analysis of several facilities at Kapustin Yar Missile Test Center has revealed a strong resemblance in physical appearance between these installations and the permanent launch sites at Antipinskoye. The Kapustin Yar installations under consideration are:

1. Site "D", SA-3 Launch Area KYMTC
2. SA-3 Training Site "A", KYMTC
3. SA-3 Training Site "B", KYMTC

The resemblance is particularly striking with reference to Site "D" in the SA-3 Launch Area (See Attachment 10). Both this site and Training Site "A" were observed on recent, excellent quality KH-7 photography. Both consist of six positions--a departure from the four positions normally associated with the SA-3 system. Site "D" is the only site in the SA-3 launch area with two extra positions. Training Site "B" also consists of 6 positions, though they are not as well defined. This site has not been observed on KH-7 photography to date.

The outstanding difference between these three sites and those at Antipinskoye is that the launch positions at these three sites are contiguous to the outer edge of the circular service road while those at Antipinskoye lie on the inner edge.

Basic dimensions of the KY sites, and those at Antipinskoye, are shown in Attachment 11. The dimensions are keyed to the generalized drawing which is intended to represent all sites.

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It must be emphasized that no evidence presently exists which indicates that those KY sites presented herein, and the Antipinskoye sites are engaged in the same activity, or support the same missile system. The Kapustin Yar sites have been included solely on the basis of their physical appearance.

## DISCUSSION

Two explanations for the SAM activity at Antipinskoye seem more likely than any others. The first is that this facility is a SAM training area, similar to those seen at Sary Shagan and Kordon. The second is that the facility represents some R&D effort, either weapons system R&D or scientific research.

Several arguments can be presented in favor of SAM training:

1. The facility is isolated enough to permit live firing of missiles.
2. There is no known major SAM training area in the Soviet Union, east of Sary Shagan.
3. The number of launch facilities seems adequate--approximately the same as that seen at Sary Shagan, and approximately half that seen at Kordon.
4. These launch facilities give the appearance of functioning as a system unit, rather than as individual launch positions.
5. Large amounts of equipment, much of it apparently identical is always seen near the launch areas, when they are active.
6. The appearance of the equipment, where any interpretations or opinions can be expressed, is at least compatible with SA-2 equipment.

There are also arguments in opposition to SAM training activity:

1. Lack of a permanent SAM Support Facility, at least in a recognizable form.
2. Limited barracks facilities, assuming that both permanent party personnel and training units must occupy the existing barracks facilities.
3. Extreme isolation--perhaps too much so. It would seem that suitable real estate for this type operation exists in closer proximity to the major SAM defended areas which this area would serve. It is at least 900 nm to these defended centers (with several exceptions to the west).

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With respect to a complete weapons system R&D effort at Antipinskoye such as that seen at Sary Shagan, or Tyuratam, the possibility can probably be discarded from the outset, for the following reasons:

1. No instrumented range facilities can be identified down-range, or within a 75 nm radius of the launch sites.
2. The supporting facilities available do not appear designed to support a specialized, high-priority weapons research program.
3. The nearest known railhead is located 50 nm away at Chita, and no associated aircraft landing facilities have been identified to date.
4. The heavy, omnipresent security measures, visible around all facilities associated with a military R&D program are not evident here.

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1. The isolated location, with many miles of roads, and at least one good bridge, constructed solely to permit access to this location.
2. The launch site configurations are different from those seen anywhere else, although this may be nothing more than a result of the permanent frost conditions which prevail here.
3. The climate may be important, since Antipinskoye is located near the coldest part of the USSR.
4. The supporting facilities seem more suited to a less critical, smaller and slower paced effort.

Finally there are points to consider in opposition to scientific research:

1. The launch positions are grouped into 6-position sites, and apparently function as such, which is uncommon when associated with research.
2. The large amounts of equipment which are consistently parked in the vicinity of the sites do not suggest a slow-paced, deliberate operation. They suggest the presence of men and equipment functioning as units.

#### CONCLUSIONS

By reviewing the arguments presented above, a reasonable case can be presented for either SAM training or some type of R&D effort at the Antipinskoye SAM-Related Activity. Considering the relative merits of each argument, it is believed that the strongest case, presently, can be made in favor of SAM training.

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MAPS

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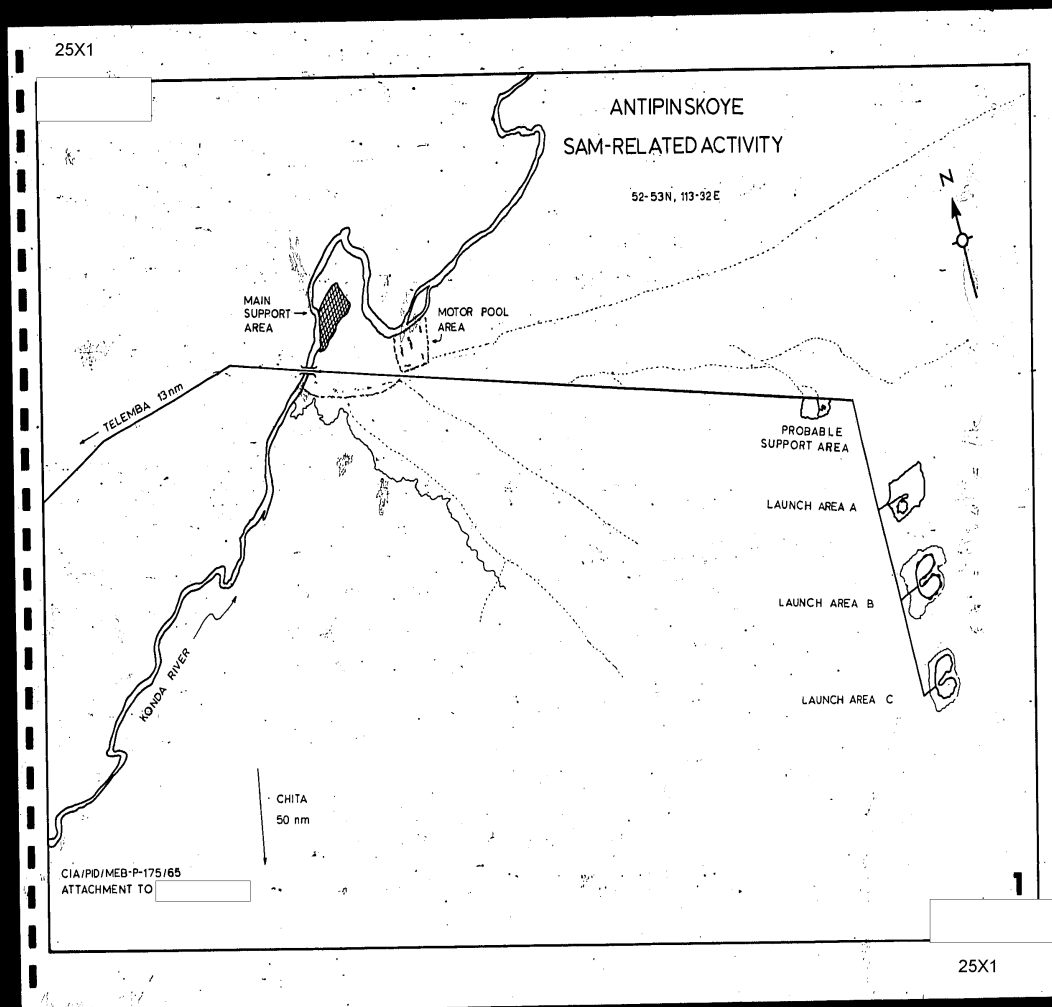
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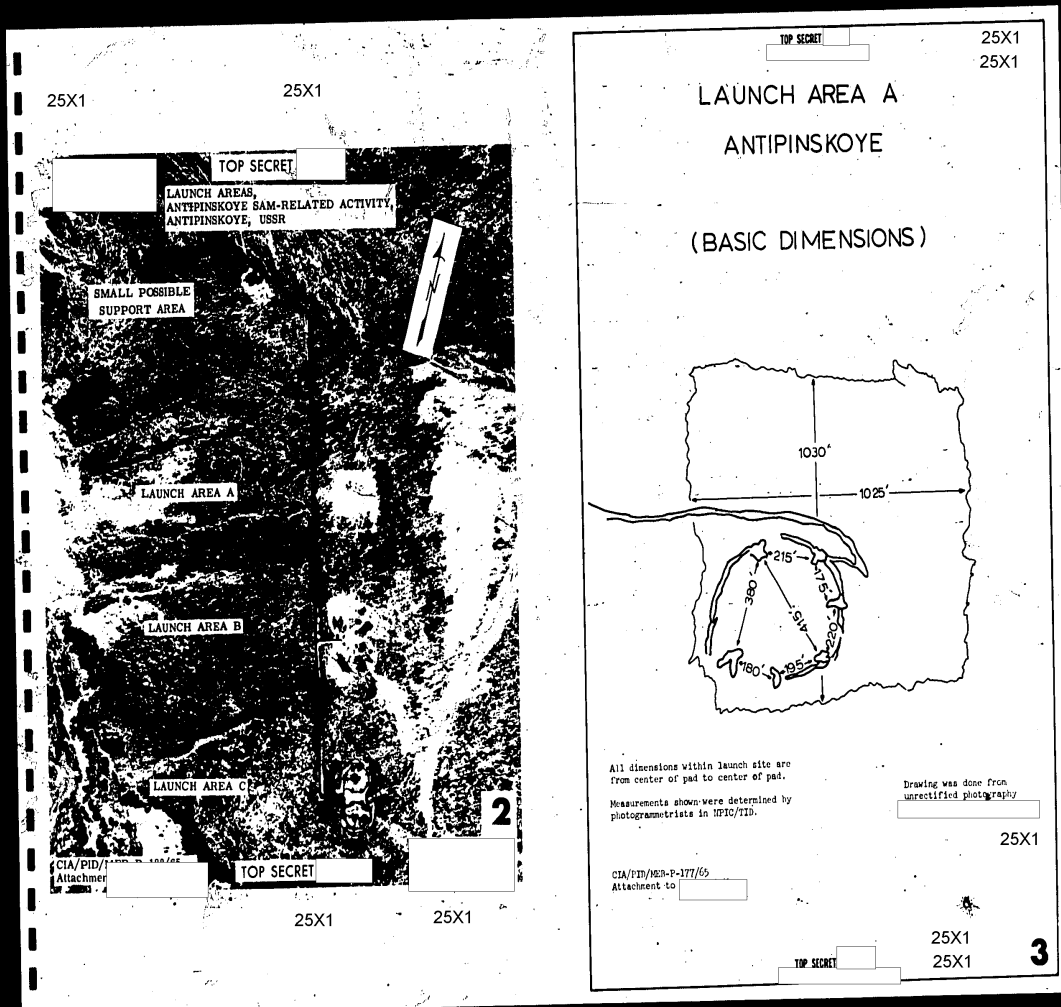
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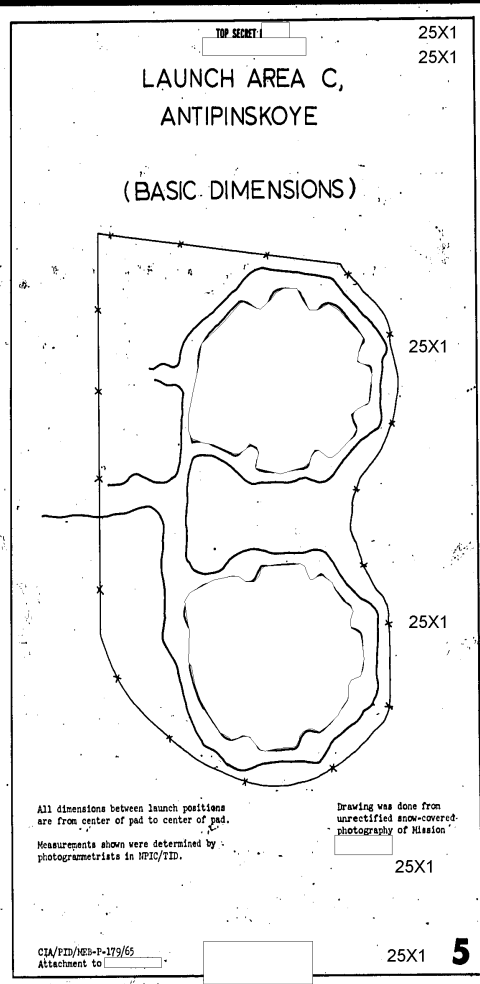
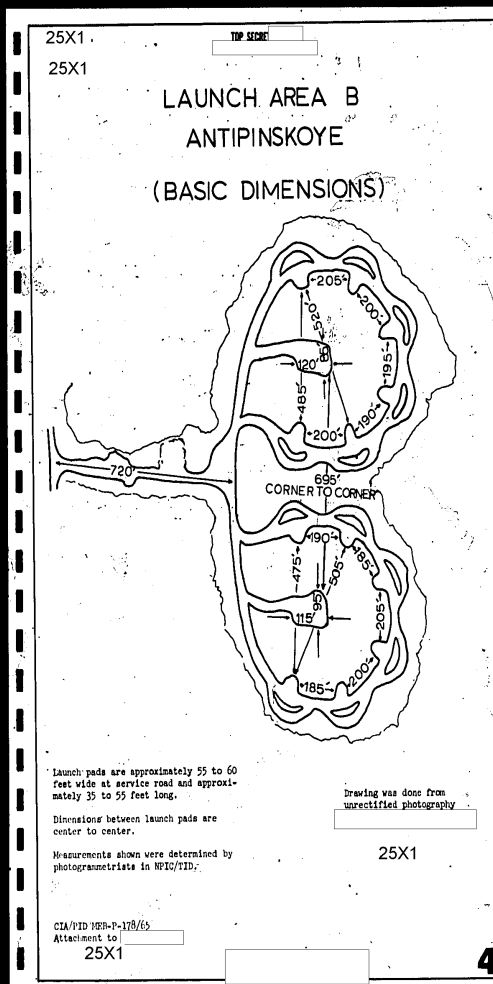
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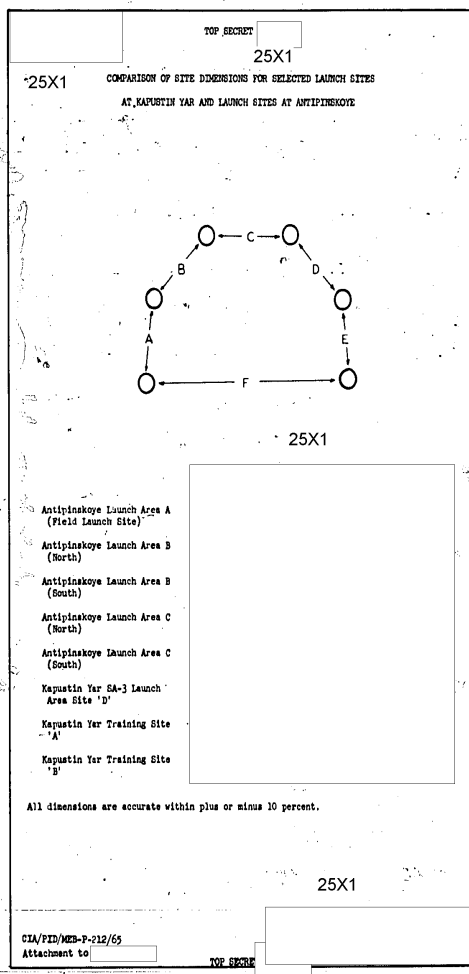
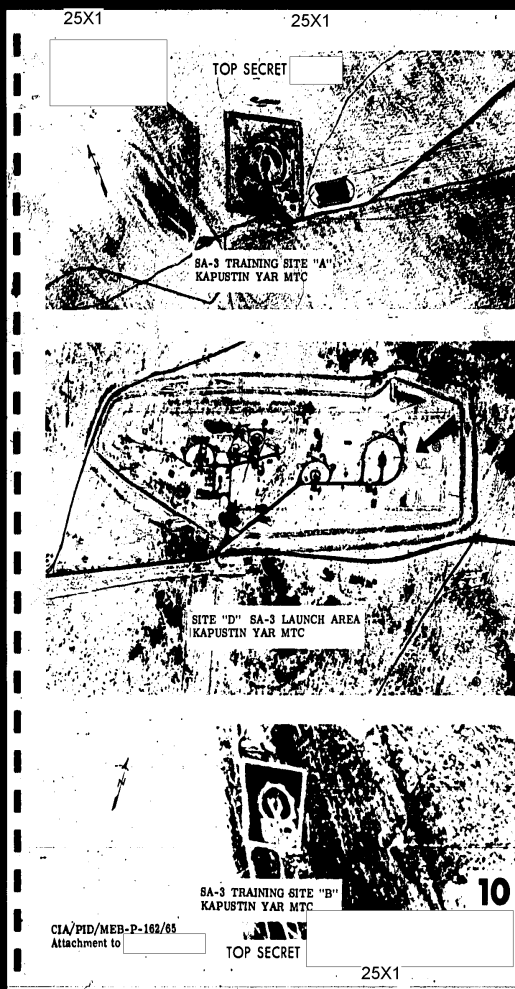












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